

REMARKS

This application has been carefully reviewed in light of the Office Action dated September 26, 2003 (Paper No. 13). Claims 10 to 18 are in the application, of which Claim 10 is independent. Claims 1 to 9 have been cancelled without prejudice or disclaimer of the subject matter contained therein. Applicants respectfully request reconsideration and further examination.

In the Office Action, Claims 10 to 12, 16 and 17 were rejected under 35 U.S.C. § 103(a) over U.S. Patent No. 6,300,158 (Simburger) in view of U.S. Patent No. 6,262,558 (Weinberg), or alternatively, over Simburger in view of EP 0 807 980 (Shiotsuka). In addition, Claims 13 to 15 and 18 have been rejected over Simburger and Weinberg or Shiotsuka in view of U.S. Patent No. 5,951,785 (Uchihashi), U.S. Patent No. 5,569,998 (Cowan) or U.S. Patent No. 4,409,537 (Harris). Withdrawal of these rejections is respectfully requested.

The present invention relates to a solar battery device which is electrically connectable to at least one other solar battery device in parallel. According to one feature of the invention, a controller is structured to control a power converter so that a detected current value does not exceed a threshold value which is predetermined based on a maximum rated current value of an output connector or a current path of the output connector. By virtue of this feature, the solar battery device of the present invention may be more easily connected to other solar battery devices without undue concern of overloading the current path of the combined system.

According to Claim 10, the present invention is a solar battery device which is electrically connectable to at least one other solar battery device in parallel having a solar

battery and a power converter, the power converter being structured to convert electric power output from the solar battery. The device also has an input connector which is structured to input electric power from another solar battery device connected in parallel; an output connector which is structured to collect the electric power input by said input connector and the electric power output by said power converter, and output the collected electric power to outside said device; and a detector which is structured to detect a current value of the collected electric power. In addition, the solar battery device has a power converter controller, the power converter controller being structured to control operation of said power converter so that the current value detected by said detector does not exceed a threshold value which is predetermined based on a maximum rated current value of the output connector or a current path of the output connector.

The applied art, taken either alone or in combination, is not seen to teach or suggest the features of the present invention. In particular, the applied art is not seen to teach or suggest at least the feature of a power converter controller being structured to control operation of said power converter so that the current value detected by a detector does not exceed a threshold value which is predetermined based on a maximum rated current value of an output connector or a current path of the output connector.

According to the Office Action, Simburger discloses a solar battery a power converter, and input and output connectors. Furthermore, the Office Action indicates that Simburger differs from the instant invention because Simburger does not teach the use of a detector or a controller.

The features of a detector and a controller, according to the Office Action, are taught by Weinberg and Shiotsuka. Applicants respectfully disagree with this

interpretation, and maintain their position that there is no teaching of at least the feature of the power converter controller structured to control operation of a power converter so that the current value detected by said detector does not exceed a threshold value which is predetermined based on a maximum rated current value of an output connector or a current path of the output connector.

The structural difference may be highlighted by comparing the present invention to the proposed combination of Simburger and Shiotsuka. The Office Action points to Shiotsuka's page 7, lines 30 to 36 and Figure 6, which allegedly disclose a controller and the detector corresponding to those of the present invention. Figure 6 shows the arrangement of the solar cell module, the detector, the inverter, the controller and the load circuit. As shown, it is not seen how the controller could control operation of a power converter so that the current value detected by the detector does not exceed a threshold value, since the controller controls the inverter, which is after the detector in the current path. Any change in the output of the inverter by the controller would not affect the current detected by the detector. In other words, Shiotsuka's detector would still detect the current that comes directly from the solar cell module which has not yet been converted. Thus, the combination of Simburger and Shiotsuka would not be able to achieve the desired result, as the Office Action has argued.

With respect to Weinberg, Weinberg is also not seen to teach the power converter controller of the present invention and, in addition, is not seen to teach a detector structured to detect a collected power which is output to outside the device. With reference to Figure 11 of Weinberg, the current detector 211, detects power going to charge a battery 3, which is part of the device. Thus, Weinberg is seen to teach a detector which merely

detects current that is maintained in the device and the portion that goes outside of the device to the user load 89 is undetected. In contrast, the present invention has a detector which is structured to detect a collected current from an input connector and from a power converter, the collected current being outputted to outside the device. Because of this arrangement, the combination of Simburger and Weinberg are not seen to teach or suggest the present invention.

Weinberg is not seen to teach the controller of the present invention and Applicants note that the provision of such a controller in Weinberg would defeat the purpose of Weinberg's device. As mentioned before, Weinberg's current detector is arranged to detect current charging a battery. To control the power converter based on the maximum rated current value of the output connector could be counter-productive to the apparent goal of running the Weinberg system at the maximum power point. Since "the proposed modification or combination of the prior art would change the principal of operation of the prior art invention being modified, then the teachings of the references are not sufficient to render the claims *prima facie* obvious." See MPEP 2143.02.

Uchihashi, Cowan and Harris are not seen to compensate for the deficiencies of Simburger, Weinberg and Shiotsuka.

In maintaining the § 103(a) rejection of the claims, the Office Action continues to discount the operation of the claimed controller, incorrectly referring to it as an "intended use" to which no patentable weight is ascribed. Applicants maintain their position that this is an incorrect application of the patent laws, contrary to both court precedent and USPTO procedure. Rejections based on "intended use" are only permissible

when such uses are specified in the preamble; and even then rejections do not always result. See MPEP § 2111.02:

“The determination of whether preamble recitations are structural limitations or mere statements of purpose or use ‘can be resolved only on review of the entirety of the [record] to gain an understanding of what the inventors actually invented and intended to encompass by the claim.’”

Even Ex parte Masham, which the Office Action has previously cited, involved an intended use contained in a preamble. See MPEP § 2114. The functional language in the present claims is provided by the body of the present claims. Consequently, the “intended use” analysis is incorrectly applied to the functional language of the present claims.

Moreover, it is error to ignore the claimed structure, simply for the reason that the structure is defined by its functionality. See MPEP § 2173.05.

“A functional limitation is an attempt to define something by what it does, rather than by what it is... A functional limitation must be evaluated and considered, just like any other limitation of the claim, for what it fairly conveys to a person of ordinary skill in the pertinent art in the context in which it is used. A functional limitation is often used in association with an element, ingredient, or step of a process to define a particular capability or purpose that is served by the recited element, ingredient or step.”

As discussed above, once the functional language of the claim has been given full weight the structural differences between the present invention and the applied art become apparent.

With respect to the motivation to modify the references, the Office Action asserts that the references must teach the desirability of the resulting device, not the intended use of the device. However, in Applicants view the Office Action posits a motivation without citation to prior art evidencing recognition of that motivation.

Applicants respectfully request a citation to prior art evidence that provides the motivation to which the Office Action refers.

Accordingly, independent Claim 10 is believed to be in allowable condition. Reconsideration and withdrawal of the § 103(a) rejection of Claim 10 are respectfully requested.

The other claims in the application are dependent from the independent claims discussed above and therefore are believed to be allowable over the applied reference for at least the same reasons. Because each dependent claim is deemed to define an additional aspect of the invention, the individual consideration of each on its own merits is respectfully requested.

In view of the foregoing amendment and remarks, the entire application is believed to be in condition for allowance and such action is respectfully requested at the Examiner's earliest convenience.

Applicants' undersigned attorney may be reached in our Costa Mesa, California office at (714) 540-8700. All correspondence should continue to be directed to our below-listed address.

Respectfully submitted,


Attorney for Applicants

Registration No. 54,336

FITZPATRICK, CELLA, HARPER & SCINTO
30 Rockefeller Plaza
New York, New York 10112-2200
Facsimile: (212) 218-2200